PATENT COOPERATION TREATY

PCT

TRANSLATION INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applica	nt's or a	gent's file r	eference			
Applicant's or agent's file reference NEC04P260			cicionec	FOR FURTHER ACT	TION	See Form PCT/IPEA/416
Internati	ional app	plication N	0.	International filing date ((day/month/year)	Priority date (day/month/year)
PCT	/JP2	2004/0	016513	08.11.2004		01.12.2003
Internati	ional Pat	tent Classif	ication (IPC) or nati	onal classification and IPC	7	
			H04B7/06	, H04B1 /707	. H04B7/10), Н04В7/26
				H04J	15/00	
Applica	nt					
NEC	COF	RPORA	rion			
This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.						International Preliminary Examining Authority
2.			onsists of a total of		sheets, including	g this cover sheet.
3.	This re	eport is also	accompanied by A	NNEXES, comprising:		
	a. 📐	(sent	to the applicant and	to the International Burea	u) a total of 5	sheets, as follows:
						mended and are the basis for this report and/or
			sheets containing red Instructions).	ctifications authorized by	this Authority (see Ru	le 70.16 and Section 607 of the Administrative
						siders contain an amendment that goes beyond
			the disclosure in the Box.	e international application	as filed, as indicated	in item 4 of Box No. I and the Supplemental
	ь. 🗌	(sent	to the International .	Bureau only) a total of (inc	dicate type and number	r of electronic carrier(s))
						containing a securence listing and/or tables
	, containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see					
		Section	802 of the Administ	rative Instructions).		
4.	This re	eport conta	ins indications relati	ng to the following items:		
Box No. I Basis of the report						
		Box No.	II Priority			
Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicabili Box No. IV Lack of unity of invention Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial arcitations and explanations supporting such statement Box No. VI Certain documents cited			shment of opinion with reg	gard to novelty, invent	ive step and industrial applicability	
			IV Lack of unit	y of invention		
			lty, inventive step or industrial applicability;			
			uments cited			
		Box No.	VII Certain defe	ects in the international app	plication	
Box No. VIII Certain observations on the international application						
Date of	submiss	ion of the d	lemand	Da	ate of completion of the	is report
Name ar	nd maili	ng address	of the IPEA/JP	Au	thorized officer	
Facsimile No.				lephone No.		

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/JP2004/016513

Box	No. I	Basis of the report					
1.		regard to the language, this report is based on the international application in the language in which it was filed, unless otherwise ated under this item.					
		This report is based on translations from the original language into the following language which is the language of a translation furnished for the purposes of: international search (Rule 12.3 and 23.1(b))					
		publication of the international application (Rule 12.4)				
		international preliminary examination (Rule 55.2 and/	or 55.3)				
2.	rece	regard to the elements of the international application, this report is based on (replacement sheets which have been furnished to the ving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to report): the international application as originally filed/furnished					
		the description:					
		pages 1–17		as originally filed/furnished			
		pages*	·				
		pages*	received by this Authority on				
		the claims:					
		nos.		as originally filed/furnished			
			as amended (together with any				
		nos.* 1-4,6-9	received by this Authority on	2005			
	_	nos.*	received by this Authority on				
	\boxtimes	the drawings:					
		sheets fig. 1-10	;	as originally filed/furnished			
		sheets*	received by this Authority on				
		sheets*	received by this Authority on				
		a sequence listing and/or any related table(s) – see Supplem	ental Box Relating to Sequence Listing.				
3.	\boxtimes	The amendments have resulted in the cancellation of:					
		the description, pages					
4.		This report has been established as if (some of) the amend they have been considered to go beyond the disclosure as fil	ments annexed to this report and listed belo	w had not been made, since			
		the description, pages					
		the claims, nos.					
		the drawings, sheets/figs					
		the sequence listing (specify):					
		any table(s) related to sequence listing (specify):					
*	If ite	em 4 applies, some or all of those sheets may be marked "sup-					

International application No.	
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1.	Statement		
	Novelty (N)	Claims 1-4, 6-9 Claims	3.50
	Inventive step (IS) Industrial applicability	Claims Claims 1-4, 6-9 (IA) Claims Claims 1-4, 6-9	NO YES
2.	Citations and explanations	(Rule 70.7)	
	Document 1:	JP 2001-203623 A (Oki Electric Industry Co.,	
		Ltd.), 27 July 2001 (Family: none)	
	Document 2:	JP 2001-251233 A (Toshiba Corp.), 14	
		September 2001 & US 2001/0049295 A1	
	Document 3:	JP 2003-110476 A (Matsushita Electric	
		Industrial Co., Ltd.), 11 April 2003 & WO	
		2003/030404 A1 & EP 1353453 A1 & US	
		2004/058711 A & DE 060205582 D & CN	
		001488205 A	
	Document 4:	JP 2002-135032 A (NEC Corp.), 10 May 2002 &	
		EP 1202389 A1 & CN 1350348 A & US 6433738 B1	
	Document 5:	JP 2003-283394 A (NEC Corp.), 03 October 2003	3
		& WO 2003/081805 A1 & US 2005-0153657 A & EP	ı
		001492252 A1 & CN 001656711 A	
	Claims 1 and	. 6	

Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability;

Multi-beam transceivers that estimate the direction from which an incoming reception signal will arrive based on the predetermined delay profiles for each of a plurality of beams and then implement directional control in order to transmit the outgoing transmission signals in the estimated arrival direction of the incoming reception signal are well known, as disclosed in document 1

Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

(paragraphs [0088] to [0108] and fig. 8) and document 2 (paragraphs [0072] to [0079] and fig. 5) for example.

Meanwhile, document 3 (paragraphs [0059] and [0060], and fig. 4 and 5) indicates that upon detecting a different delay profile with the same path timing as the path timing of the delay profile that was determined to have the maximum reception signal power, the reception antenna weights for the beams associated with the two delay profiles that were determined to have said path timing are subjected to proportional calculations in order to calculate a new antenna weight, which corresponds to a direction between the two beams that are associated with the two delay profiles in question.

In addition, it is apparent that the invention disclosed in document 3 also detects the reception signal power of each beam when detecting the path timing.

Furthermore, techniques for determining the direction of a user who is located in the vicinity of a point where two adjacent beams intersect based on the reception antenna weights and the reception signal powers of the two beams are well known, as disclosed in document 4 for example.

Such being the case, the invention disclosed in document 3 is considered to calculate a new antenna weight by subjecting the reception antenna weights and the reception signal powers of two beams to proportional calculations.

The method disclosed in document 3 is a method for inferring the direction from which signals will arrive based on the delay profiles for each of a plurality of beams, and thus it would have been easy for a person skilled in the art to conceive of configuring the

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Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

inventions set forth in claims 1 and 6 by applying the method in question as the method for inferring the direction from which signals will arrive in the well-known multi-beam transceivers that are disclosed in documents 1 and 2.

Claims 2 to 4 and 7 to 9

The multi-beam transceiver disclosed in document 1 receives the receptions signals by means of a rake reception (refer to paragraph [0062]), and said multi-beam transceiver is considered to be equipped with a delay unit for delaying the reception signals by a prescribed period based on the path timing that was established by means of the searcher.

As a result, document 1 is considered to disclose a technique wherein reception signals are used to generate a delay profile for each beam; the path timing is output in combination with the beam number of a beam that was determined to have said path timing; the reception signals are delayed by a prescribed period based on the aforementioned path timing; and the reception antenna weights that correspond to the aforementioned beam numbers are used to generate a new weight.

In addition, transceivers that employ multi-beam antennas wherein the reception signal power of the signals that were weighted by means of the reception beam former are measured in order to determine the transmission direction are well known, as disclosed in documents 4 and 5 for example.

Such being the case, it would have been easy for a person skilled in the art to conceive of configuring the inventions set forth in claims 2 to 4 and 7 to 9 in the

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Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement						
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